



US 20170234209A1

(19) **United States**(12) **Patent Application Publication**
KONDO et al.(10) **Pub. No.: US 2017/0234209 A1**(43) **Pub. Date: Aug. 17, 2017**(54) **SUPERCHARGING DEVICE FOR ENGINE****F02B 29/04**

(2006.01)

F02B 75/20

(2006.01)

F02B 37/16

(2006.01)

(71) Applicant: **MAZDA MOTOR CORPORATION**,
Hiroshima (JP)(52) **U.S. Cl.**CPC **F02B 37/04** (2013.01); **F02B 75/20**
(2013.01); **F02B 37/16** (2013.01); **F02B**
37/127 (2013.01); **F02B 29/045** (2013.01);
F02B 37/013 (2013.01); **F02B 2075/1816**
(2013.01)(72) Inventors: **Hidehiko KONDO**,
Higashihiroshima-shi (JP); **Manabu**
SUGIMOTO, Hiroshima-shi (JP)(73) Assignee: **MAZDA MOTOR CORPORATION**,
Hiroshima (JP)(21) Appl. No.: **15/412,577**(22) Filed: **Jan. 23, 2017**(30) **Foreign Application Priority Data**

Feb. 12, 2016 (JP) 2016-024868

Publication Classification(51) **Int. Cl.****F02B 37/04** (2006.01)**F02B 37/013** (2006.01)**F02B 37/12** (2006.01)

(57)

ABSTRACT

A supercharging device for an engine includes an electric supercharger which supercharges intake air, an intercooler which cools intake air discharged from the electric supercharger; and an intake manifold which is disposed substantially horizontally, and is configured to communicate between a downstream end of the intercooler in an intake air flow direction, and intake ports. The downstream end of the intercooler is located on a lower end of the intercooler. The downstream end of the intercooler is disposed substantially at the same height as an upstream end of the intake ports. The electric supercharger is disposed below the intercooler along a surface of the engine on an intake side where the intake ports are opened.

